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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Etsunori Fujita

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EXAMINER

LYNCH, PATRICK D

ART UNIT

PAPER NUMBER

4155

NOTIFICATION DATE

DELIVERY MODE

01/25/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO@WOLFBLOCK.COM

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,373	<b>Applicant(s)</b> FUJITA ET AL.	
	<b>Examiner</b> PATRICK D. LYNCH	<b>Art Unit</b> 4155	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/18/2007</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed 04/18/2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but not all of the information referred to therein has been considered.

### ***Specification***

2. The abstract of the disclosure is objected to because it is more than a single paragraph. Applicant is reminded that the abstract should be in narrative form and generally limited to a single paragraph within the range of 50 to 150 words. Correction is required. See MPEP § 608.01(b).
3. The disclosure is objected to because of the following informalities:
  - a. Page 3, line 9: "...the Patent Document 4 takes it a problem..." is an improper use of the English language.
  - b. Page 15, line 15: "...to ensure the stroke during seated..." should read, "...to ensure the stroke while seated..."
  - c. Page 16, line 20: "This is because that the both ends..." should read, "This is because the both ends..."

- d. Page 19, lines 21-22: "...it is possible to fixedly connect the horizontal frame (21) to between lower portions..." should read, "... it is possible to fixedly connect the horizontal frame (21) between the lower portions..."
  - e. Throughout the disclosure, for example on Page 1, line 15, the word "lumber" appears to be misspelled. The word should instead be spelled, "lumbar".
4. Appropriate correction is required to the above noted informalities is required. In addition, there exists within the specification several further grammatical and other typographical errors likely arising from the translation of the application from Japanese to English. Applicant's cooperation is requested in correcting any further informalities which the applicant may become aware of.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claims 4-10 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
7. Regarding claims 4-8, the limitation that the movable frame is pivotable "in front and behind" is indefinite. The phrase "in front and behind" is a relative phrase that requires a reference that the frame may pivot in front of and behind. Since there exists no clear reference structure from either the disclosure or the drawings, the examiner presumes for the purpose of this examination that the limitation is intended to convey that the movable frame is pivotable "forward and backward".

8. Specifically regarding claims 7 and 8, the claims recite the limitation "the movable frame" in the second line of each claim. There is insufficient antecedent basis for this limitation in the claim. For the purpose of this examination, the examiner presumes that claims 7 and 8 should be dependent on claims 4 and 5, respectively, rather than claim 1.
9. Further regarding claims 7 and 8, the limitation "...a displacement amount in front of and behind the movable frame..." is unclear. From the prior claims which claims 7 and 8 are presumed to depend on, the examiner presumes that the movable frame is the structure that is being displaced. Thus, the limitation should read, "...a displacement amount forward and backward of the moveable frame..."
10. Regarding claim 9, the claim recites the limitation "the respective spring adjusting members" in the second line. There is insufficient antecedent basis for this limitation in the claim. For the purpose of this examination, the examiner presumes that the "spring adjusting members" should read, "cloth spring adjusting members".
11. Regarding claims 9 and 10, it is unclear whether or not the seat structure is limited to a seat having both a supporting pressure adjusting means for the seat cushion and a supporting pressure adjusting means for the seat back or just one of the two. Claim 1, upon which claims 9 and 10 are dependent, limits the seat structure to having "at least one of" the two supporting pressure adjusting means. Furthermore claim 9 is phrased in the alternative "or" fashion. However, claims 9 and 10 use the terms "respectively" and the plural "cloth spring adjusting members", suggesting a seat structure having both supporting pressure adjusting means.

Since claims 9 and 10 are dependent upon claim 1, where the seat structure is limited to at least one of the two supporting pressure adjusting means, instead of claim 2, where the seat structure requires both, the examiner will presume, for the purpose of this examination that claims 9 and 10 require "at least one of" a supporting pressure adjusting means for the seat cushion or a supporting pressure adjusting means for the seat back.

12. Regarding claim 14, the limitation of "a movable lumbar support mechanism movably provided at least in front and behind in the vicinity corresponding to the lumbar vertebra..." is unclear. For the purpose of this examination, the examiner presumes that the lumbar support mechanism is provided in the vicinity of the lumbar vertebra and movable forward and backward.

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Bonfils (French Patent Number 2,837,436).
15. Regarding claim 1, Bonfils discloses a seat structure (Figs. 1a and 1b) including a seat cushion having a cushioning member for a seat cushion stretched across a cushion frame, and a seat back having a cushioning member for a seat back stretched across a back frame (Although not shown in the figures, it is commonly

known in the art to include a seat cushion and a seat back each with a cushioning member stretched across their respective frames. See, for example, Geller U.S. Patent 3,273,877.) , comprising:

- a. At least one of a supporting pressure adjusting means for the seat cushion for changing a supporting pressure of said cushioning member for the seat cushion and a supporting pressure adjusting means for the seat back for changing a supporting pressure of said cushioning member for the seat back (Fig. 1 shows a supporting pressure adjusting means for the seat portion consisting of a "suspension sheet" 3, "toothed wheel" 10, "connecting rod" 9, and "rod" 11.).
- b. Wherein the supporting pressure adjusting means for the seat cushion and the supporting pressure adjusting means for the seat back comprises:
  - i. A cloth spring ("suspension sheet" 3, Fig. 1; The examiner notes that the Derwent abstract for this patent explains under the Novelty heading, "The sheet has a stiffness that nonlinearly varies as a function of the stretching of the sheet..." Thus, the sheet has elastic properties and is therefore considered a cloth spring.) provided on the back of the cushioning member for the seat cushion or the cushioning member for the seat back respectively (From Fig. 1, it is clear that the "suspension sheet" 3 would be underneath and thus 'provided on the back of' the cushioning member for the seat cushion.) and stretched across the cushion frame or the back frame (Fig. 1 shows "suspension sheet" 3 stretched across the eat cushion frame.).

- ii. A cloth spring adjusting member to adjust the tension of the cloth spring ("Toothed wheel" 10, "connecting rod" 9, act to pivot "rod" 11 within "passage" 12 to adjust the tension of the "suspension seat" 3; See Fig. 1 and Derwent Title.).
  - iii. Wherein said cloth spring adjusting member adjusts the tension of the cloth spring to change the supporting pressure of the cushioning member for the seat cushion stretched across the frame or the supporting pressure of the cushioning member for the seat back stretched across the back frame (The operation of the adjusting member described above is clear from Fig. 1. As the tension in the "supporting sheet" 3 is increased there is a greater stiffness and thus an increased supporting pressure for the cushioning member for the seat cushion.).
13. Regarding claim 4, Bonfils discloses that one end of the cloth spring composing said supporting pressure adjusting means for the seat cushion is disposed on the front of said cushion frame along the width direction (Fig. 1 shows that an end of "suspension sheet" 3 is disposed along "rod" 11 in the width direction at the front of the seat cushion frame.) and engaged with a movable frame pivotable forward and backward (It is clearly understood from Fig. 1 that "rod" 11, considered a movable frame, pivots forward and backward about the "toothed wheel" 10), and the other end of the cloth spring is connected to the rear of said cushion frame (Fig. 1 shows that the opposite end of "suspension sheet" 3 is attached to the rear of the seat cushion frame at the reference number 7.) and the cloth spring adjusting member



is structured such that it can pivot the movable frame forward and backward (It is clearly understood from Fig. 1 that pivotal motion is transferred from "toothed wheel" 10 to "rod" 11, considered the movable frame, by "connecting rod" 9.) and at least a portion of the cushioning member for the seat cushion is displaced in a direction protruding upward by pivoting the movable frame forward in the seated state to raise the supporting pressure (Form the structure shown in Fig. 1, it is apparent that as the "rod" 11 is pivoted forward, the tension of "suspension sheet" 3 increases. According to the Derwent abstract under the heading novelty, "The sheet has a stiffness that nonlinearly varies as a function of stretching of the sheet, affected by rotation of the toothed wheel." Thus, as the tension increases, the stiffness increases, and the supported seat cushion is unable to deform the "suspension sheet" downward as far, thereby effectively displacing the cushion in a direction protruding upward.).

14. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Bonfils (French Patent Number 2,837,436).
16. Regarding claim 1, Inaba et al. discloses a seat structure (Fig. 4) including a seat cushion having a cushioning member for a seat cushion stretched across a cushion frame, and a seat back having a cushioning member for a seat back stretched across a back frame (Fig. 4 shows cushions for the seat back and seat. A frame is implied as there must be something to hold the shape and position of the seat cushions. Furthermore, Fig. 5 shows the seat back cushion, "urethane" 8, stretched across "frame" 1.) , comprising:

- a. At least one of a supporting pressure adjusting means for the seat cushion for changing a supporting pressure of said cushioning member for the seat cushion and a supporting pressure adjusting means for the seat back (The pressure adjusting means for the seat back includes “handle” 20, “shaft” 15’, “brackets” 2b’, 2c’, and 3c’, “supporting wires” 4a and 5a, “bar” 18’ in Fig. 1.) for changing a supporting pressure of said cushioning member for the seat back (Abstract, lines 5-7, “Adjustable tension applying means are provided to adjust the seatback in both the lumbar area, and the shoulder area.” Thus, as the tension is changed the supporting pressure for the cushioning member is changed.).
- b. Wherein the supporting pressure adjusting means for the seat cushion and the supporting pressure adjusting means for the seat back comprises:
  - i. A cloth spring (“fabric” 6a, Fig. 2; Col. 2, lines 63-65, “The fabric 6a has considerable flexibility and is deformable in all directions.”) provided on the back of the cushioning member for the seat cushion or the cushioning member for the seat back respectively and stretched across the cushion frame or the back frame (Fig. 3 shows the “fabric” 6a provided behind cushioning made up of “urethane pad” 8 while Fig. 2 shows “Fabric” 6a stretched across the seat back frame.)
  - ii. A cloth spring adjusting member to adjust the tension of the cloth spring (The cloth spring adjusting member includes “handle” 20, “shaft” 15’, “brackets” 2b’, 2c’, and 3c’, “supporting wires” 4a and 5a, and “bar” 18’ in Fig. 1.).

- iii. Wherein said cloth spring adjusting member adjusts the tension of the cloth spring to change the supporting pressure of the cushioning member for the seat cushion stretched across the frame or the supporting pressure of the cushioning member for the seat back stretched across the back frame (Abstract, lines 5-7, "Adjustable tension applying means are provided to adjust the seatback in both the lumbar area, and the shoulder area." Thus, as the tension is changed the supporting pressure for the cushioning member is changed.).
15. Regarding claim 5, Inaba et al. discloses that one end of the cloth spring provided on the back of the cushioning member for the seat back is disposed at the upper portion of the back frame along the width direction (Fig. 2 of Inaba et al. shows that at the upper portion of "frame" 1, an end of the "fabric" 6a is disposed along its width direction connected to "supporting wire" 1a.), and engaged with a movable frame pivotable forward and backward ("Supporting wire" 4a of Inaba et al. is considered the movable frame. It pivots by means of "bracket" 2b' forward and backward.), and the other end of the cloth spring is connected to the lower portion of the back frame (Fig. 2 of Inaba et al. shows that at the lower portion of "frame" 1, an end of the "fabric" 6a is disposed along its width direction connected to "supporting wire" 1b.), and both side ends of the cloth spring are connected to side frames protruding more to the front from the upper portion of the back frame via a spring member (Figs. 1 and 2 of Inaba et al. show that side ends of "fabric" 6a are connected to "supporting members" 2a and 3a that, as their shape in Fig. 1

displays, protrude more to the front than the upper portion of the back frame. The side "portions" 6ax and 6az which have a greater coefficient of elasticity are considered spring members which connect the "fabric" 6a to the protruding "supporting members" 2a and 3a.), and biased in the direction pushed forward in the normal state by the spring members (Fig. 2 of Inaba et al. shows that the "fabric" 6a is biased to be pushed forward by the side portions.), and wherein the cloth spring adjusting member is structured such that it can pivot the movable frame in front and behind (Rotation of "handle" 20 of Inaba et al. provides pivotal motion to the "supporting members" 2a and 3a such that the "supporting members" pivot backward and forward as is understandable from Fig. 1 and Fig. 5.), and at least a portion of the cushioning member for the seat back is displaced in a direction protruding forward by pivoting the movable frame forward in the seated state to raise the supporting pressure (During operation of the mechanism shown in Fig. 1 of Inaba et al., when the "supporting members" 2a and 3a are moved forward, they lift the cushioning, in the area proximate the "supporting members", thus displacing the cushion forward and raising the supporting pressure in the immediate area.).

### ***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonfils (French Patent Number 2,837,436) in view of Inaba et al. (U.S Patent Number 5,092,654).
18. Regarding claim 2, Bonfils discloses a seat structure including all of the structure of claim 1, upon which claim 2 is dependent, as set forth above.
19. Bonfils does not expressly disclose that the seat structure comprises both of said supporting pressure adjusting means for the seat cushion and said supporting pressure adjusting means for the seat back.
20. Inaba et al., however, discloses a "seatback spring device" (Title) including a supporting pressure adjusting means for the seat back (The pressure adjusting means includes "handle" 20, "shaft" 15', "brackets" 2b', 2c', and 3c', "supporting wires" 4a and 5a, "bar" 18' in Fig. 1.) for changing a supporting pressure of the cushioning member for the seat back (Abstract, lines 5-7, "Adjustable tension applying means are provided to adjust the seatback in both the lumbar area, and the shoulder area." Thus, as the tension is changed the supporting pressure for the cushioning member is changed.), wherein the supporting pressure adjusting means for the seat cushion comprises a cloth spring ("fabric" 6a, Fig. 2; Col. 2, lines 63-65, "The fabric 6a has considerable flexibility and is deformable in all directions.") provided on the back of a cushioning member for the seat back and stretched across the seat back frame (Fig. 3 shows the "fabric" 6a provided behind cushioning made up of "urethane pad" 8 while Fig. 2 shows "Fabric" 6a stretched across the seat back frame.), a cloth spring adjusting member to adjust tension of

the cloth spring (The cloth spring adjusting member includes "handle" 20, "shaft" 15', "brackets" 2b', 2c', and 3c', "supporting wires" 4a and 5a, and "bar" 18' in Fig. 1.) wherein said cloth spring adjusting member adjusts the tension of the cloth spring to change the supporting pressure of the cushioning member for the seat back stretched across the back frame (Abstract, lines 5-7, "Adjustable tension applying means are provided to adjust the seatback in both the lumbar area, and the shoulder area." Thus, as the tension is changed the supporting pressure for the cushioning member is changed.). This "seatback spring device" allows for adjustments to be made to the seatback such that the seat can accommodate individuals of varying sizes and increase the comfort of all occupants of the seat.

21. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the seat structure of Bonfils by including a backrest with an adjustable seatback spring device similar to that of Inaba et al. This modification would be beneficial because it allows for adjustments to be made within the seat back such that the seat can accommodate individuals of varying sizes and increase the comfort level of all seat occupants.
22. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inaba et al (U.S. Patent Number 5,092,654) in view of Fujita et al. (U.S Patent Application Publication Number 2002/0096932).
23. Inaba et al. discloses a seat structure including all of the structure of claim 1, upon which claim 3 is dependent.

24. Inaba et al. further discloses that the cushioning member consists of a padded layer ("urethane" 8, Fig. 5) and a "covering member" (element 9, Fig. 5).
25. Inaba et al. does not expressly disclose that the cushioning member for the seat cushion stretched across the cushion frame and the cushioning member for the seat back stretched across the back frame are a solid knitted fabric knitted by reciprocating connecting yarn between a pair of ground knitted fabrics positioned at a prescribed distance or a stacked body of a solid knitted fabric and a urethane member.
26. Fujita et al., however, discloses a seat structure wherein the cushioning on top of a "support member" (element 50, Fig. 6) consists of a "hard cushion member layer" (element 70, Fig. 1), a "soft cushion member layer" (element 80, Fig. 1), and a "covering member" (element 40, Fig. 1). "Covering member" 40 and "soft cushion member layer" 80 are formed of a three-dimensional net member 100 (Fig. 9), i.e. a solid knitted fabric. This cushioning structure eliminates the feeling of hard touch of any underlying frame or support members (due to the "hard cushion member layer" 70) while allowing for a soft feel and a minimum thickness of cushioning (because of the three-dimensional net member), thereby reducing the weight of the seat.
27. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cushion structure of Inaba et al. by utilizing a layered cushion with a three-dimensional net member, similar to that of Fujita et al. This modification would be beneficial because it would eliminate the hard touch of any

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underlying frame or support members while still allowing for a soft feel and a minimum cushion thickness, thereby reducing the overall weight of the seat.

28. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonfils (French Patent Number 2,837,436) in view of Geller et al. (U.S. Patent Number 3,273,877).
29. Bonfils discloses a seat structure including all of the structure of claims 1 and 4, upon which claim 6 is dependent, as set forth above.
30. Bonfils does not expressly disclose that the cloth spring adjusting members comprise a motor and a transmitting member provided between the motor and the movable frame, transmitting the drive of the motor to the moveable frame, and pivoting the movable frame in front and behind.
31. Geller et al., however, discloses a vehicle seat including a seat tensioning device (see Fig. 1), wherein the seat tensioning is actuated by a motor ("motor means" 19, Fig. 1) which provides pivotal motion to "tubular member" 13 for tensioning and loosening the seat. By providing a motor the amount of physical exertion by an occupant of the seat to change the firmness of the seat is minimized.
32. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the seat structure of Bonfils by incorporating a motor to actuate the cloth spring adjusting member for the seat cushion. The motor would provide pivotal motion to "toothed wheel" 10 of Bonfils, which would be transmitted by means of "connecting rod" 9 to "rod" 11, thus pivoting "rod" 11 forward and backward. This modification would be beneficial because it would minimize the



amount of physical exertion required from an occupant of the seat to alter the supporting pressure of the seat cushion.

33. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonfils (French Patent Number 2,837,436).
34. Bonfils discloses the claimed invention except that a displacement amount forward and backward of the movable frame is not explicitly limited to the range of 5 to 15 mm in a straight direction. It would have been obvious to one having ordinary skill in the art at the time the invention was made to control the displacement amount in the range of 5 to 15 mm in a straight direction since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See MPEP 2144.05.
35. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inaba et al. (U.S. Patent Number 5,092,654).
36. Regarding claim 8, Inaba et al. discloses the claimed invention except that a displacement amount forward and backward of the movable frame is not explicitly limited to the range of 10 to 20 mm in a straight direction. It would have been obvious to one having ordinary skill in the art at the time the invention was made to control the displacement amount in the range of 10 to 20 mm in a straight direction since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See MPEP 2144.05.

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37. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inaba et al. (U.S. Patent Number 5,092,654) in view of Benson (U.S. Patent Number 5,816,653).
38. Regarding claims 9 and 10, Inaba et al discloses a seat structure including all the limitations of claim 1 upon which claims 9 and 10 are dependent, as set forth above.
39. Inaba et al. does not expressly disclose that the respective spring cloth adjusting member comprising the supporting pressure adjusting means for the seat cushion or the supporting pressure adjusting means for the seat back are controlled to operate at prescribed time interval. Furthermore, Inaba et al. does not disclose that the cloth spring adjusting member is controlled to operate at every prescribed time interval, during a prescribed operating period of time, and at a prescribed cycle.
40. Benson, however, discloses an apparatus for adjusting the position of a supporting element in a seat (Title) that includes "a driving means for automatically and repeatedly moving the flexible supporting element through an adjustment cycle." Furthermore, Benson discloses that "the adjustment cycle may be cancelled after a fixed time period, when the vehicle ignition is turned off, or any other manner known in the art. It should be appreciated that the adjustment cycle may be re-initiated at any time by the seat occupant..." (Col. 6, lines 66-67 and Col. 7, lines 1-3). Thus the adjustment occurs at a prescribed time interval and every prescribed interval (i.e. when the occupant initiates the device), during a prescribed operating

period of time ("the adjustment cycle may be cancelled after a fixed period of time"), and at a prescribed cycle ("adjustment cycle"). "The repeated movement of the supporting element in small increments that are virtually imperceptible by the seat occupant creates a pumping action that increases blood circulation through the muscle fibers and prevents lactic acid build-up within the muscles. The dissipation of lactic acid reduces or eliminates muscle fatigue that generally occurs during long periods of sitting." (Col. 7, lines 30-36)

41. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the seat structure of Inaba et al. by including an apparatus for adjusting the position of seat back cushion, similar to the apparatus of Benson, as part of the supporting pressure adjustment means for the seat back. This apparatus would adjust the cloth spring by pushing against the back of the seat back, increasing the tension of the cloth spring and pushing the cushion for the seat back forward. The modification would be beneficial since it would increase an occupant's blood circulation through their muscle fibers, thereby preventing lactic acid build up and eliminating muscle fatigue over a long period of sitting.
42. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inaba et al. (U.S. Patent Number 5,092,654) in view of Japanese Patent Number 9-238776.
43. Regarding claim 11, Inaba et al. discloses a seat structure including all of the structure of claim 1, upon which claim 11 is dependent.

44. Inaba et al. does not expressly disclose a sitting state determining mechanism to determine the state of at least one out of the degree of fatigue and the degree of awakeness to perform drive controlling of at least one of the supporting pressure adjusting means for the seat cushion and the supporting pressure adjusting means for the seat back according to an output signal from the sitting state determining mechanism.
45. Japanese Patent Number 9-238776, however discloses an excitation device (shown in Fig. 1) which moves between a use and non-use position in response to a "nap detection sensor" (element 52 in Fig. 7). In the use position, the excitation device presses against the lumbar portion of the seat occupant and oscillates to increase the alertness of the seat occupant. The "nap detection sensor" is considered a sitting state determining mechanism because it determines the state of an occupant sitting in the seat in terms of their degree of fatigue (i.e. whether they have fallen asleep). This excitation device awakens a drowsy seat occupant to prevent falling asleep which may lead to a loss of vehicle control and accidents.
46. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the seat structure of Inaba et al. by including, as part of the supporting pressure adjusting means for the seat back, an excitation device which is actuated by a nap detection sensor and moves between a use and non-use position, similar to the device of Japanese Patent Number 9-238776. This device would be considered part of the supporting pressure adjusting means since in its use position the, device would push against the cloth spring at the lumbar region,

thereby increasing the supporting pressure by at least a small amount. This modification would be beneficial because it would awaken a drowsy seat occupant to prevent falling asleep behind the wheel which may lead to loss of vehicle control and accidents.

47. Regarding claim 12, Inaba et al. as modified by Japanese Patent Number 9-238776 discloses that the seat structure includes a stimulus imparting means for enhancing the degree of awakeness of a seated person (see discussion of claim 11 above).
48. Regarding claim 13, Inaba et al as modified by Japanese Patent Number 9-238776 discloses that the seat structure provides a sitting state determining mechanism to determine the state of at least one element out of the degree of fatigue and the degree of awakeness and wherein the stimulus imparting means operates when at least one of the degree of fatigue and the degree of awakeness determined by said sitting state determining mechanism arrives at a prescribed degree of fatigue of awakeness (see discussion of claim 11 above).
49. Regarding claim 14, Inaba et al. as modified by Japanese Patent 9-238776 discloses that the stimulus imparting means is a movable lumbar support mechanism provided in the vicinity corresponding to the lumbar vertebra in the seat back and movable forward and backward (see discussion of claim 11 above).

### ***Conclusion***

50. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kuster et al. (U.S. Patent Application Publication Number

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2001/0022458), Hughes (U.S. Patent Number 4,798,414), Warrick (U.S. Patent Number 4,712,834), Ryan (U.S. Patent Number 5,439,271), Beck (U.S. Patent Number 3,924,613), Maeda et al. (U.S. Patent Number 6,231,125), Nishino et al. (U.S. Patent Application Number 2002/0060493), Kawasaki (U.S. Patent Number 6,435,618), Vail et al. (U.S. Patent Number 4,702,522), Muncheryan (U.S. Patent Number 4,203,098), Kashiwamura et al. (U.S. Patent Number 4,655,505), Yamazaki et al. (U.S. Patent Number 4,465,158), Osagawara (U.S. Patent Number 5,065,079), Blanco (U.S. Patent Number 6,663,177), Miller (U.S. Patent 5,990,795), and Najor (U.S. Patent Number 6,392,550).

51. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK D. LYNCH whose telephone number is (571)270-3736. The examiner can normally be reached on Monday-Friday, 7:30 a.m. - 5:00 p.m., EST.
52. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Victor Batson can be reached on (571) 272-6987. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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53. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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